

PCT

WORLD INTELLECTUAL PRO  
International

INTERNATIONAL APPLICATION PUBLISHED UNDER



(51) International Patent Classification <sup>6</sup> :

G06K 19/067, B42D 15/10, G09F 3/03

A1

(11) I

WO 9606409A1

(43) International Publication Date: 29 February 1996 (29.02.96)

(21) International Application Number: PCT/AU95/00545

(22) International Filing Date: 25 August 1995 (25.08.95)

(30) Priority Data:

PM 7690 25 August 1994 (25.08.94) AU  
PN 4702 9 August 1995 (09.08.95) AU

(71) Applicant (for all designated States except US): GEEFIELD  
PTY. LTD. [AU/AU]; ACN 065 327 782, Level 18, 300  
Queen Street, Brisbane, QLD 4000 (AU).

(72) Inventor; and

(75) Inventor/Applicant (for US only): CHAPMAN, Bryan, P.  
[AU/AU]; P.O. Box 433, Clayfield, QLD 4011 (AU).

(74) Agent: PIZZEY & COMPANY; Level 6, 444 Queen Street,  
Brisbane (AU).

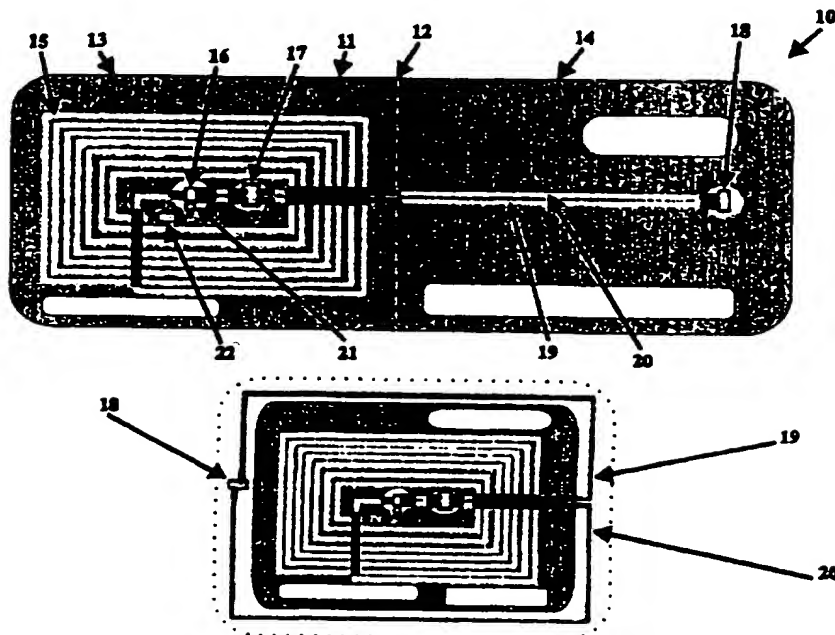
(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH,  
CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE,  
KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MK,  
MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,  
SK, TJ, TM, TT, UA, UG, US, UZ, VN, European patent  
(AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC,  
NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA,  
GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW,  
SD, SZ, UG).

Published

With international search report.

Before the expiration of the time limit for amending the  
claims and to be republished in the event of the receipt of  
amendments.

(54) Title: METHOD AND APPARATUS FOR PROVIDING IDENTIFICATION



(57) Abstract

A method of providing identification of an individual including: maintaining a database of identification data specific to the appearance and/or condition of individuals; providing a unique description for each individual enabling access to the individuals identification data in the database, and providing identification means (10) adapted for portage with the individual and containing the unique description.

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

|    |                          |    |                                       |    |                          |
|----|--------------------------|----|---------------------------------------|----|--------------------------|
| AT | Austria                  | GB | United Kingdom                        | MR | Mauritania               |
| AU | Australia                | GE | Georgia                               | MW | Malawi                   |
| BB | Barbados                 | GN | Guinea                                | NE | Niger                    |
| BE | Belgium                  | GR | Greece                                | NL | Netherlands              |
| BF | Burkina Faso             | HU | Hungary                               | NO | Norway                   |
| BG | Bulgaria                 | IE | Ireland                               | NZ | New Zealand              |
| BJ | Benin                    | IT | Italy                                 | PL | Poland                   |
| BR | Brazil                   | JP | Japan                                 | PT | Portugal                 |
| BY | Belarus                  | KE | Kenya                                 | RO | Romania                  |
| CA | Canada                   | KG | Kyrgyzstan                            | RU | Russian Federation       |
| CF | Central African Republic | KP | Democratic People's Republic of Korea | SD | Sudan                    |
| CG | Congo                    | KR | Republic of Korea                     | SE | Sweden                   |
| CH | Switzerland              | KZ | Kazakhstan                            | SI | Slovenia                 |
| CI | Côte d'Ivoire            | LI | Liechtenstein                         | SK | Slovakia                 |
| CM | Cameroon                 | LK | Sri Lanka                             | SN | Senegal                  |
| CN | China                    | LU | Luxembourg                            | TD | Chad                     |
| CS | Czechoslovakia           | LV | Latvia                                | TG | Togo                     |
| CZ | Czech Republic           | MC | Monaco                                | TJ | Tajikistan               |
| DE | Germany                  | MD | Republic of Moldova                   | TT | Trinidad and Tobago      |
| DK | Denmark                  | MG | Madagascar                            | UA | Ukraine                  |
| ES | Spain                    | ML | Mali                                  | US | United States of America |
| FI | Finland                  | MN | Mongolia                              | UZ | Uzbekistan               |
| FR | France                   |    |                                       | VN | Viet Nam                 |
| GA | Gabon                    |    |                                       |    |                          |

## METHOD AND APPARATUS FOR PROVIDING IDENTIFICATION

This invention relates to a method of and apparatus for providing identification.

This invention has particular but not exclusive  
5 application to a method of and apparatus for identifying persons and unique articles which retain a lifelong distinctive identity such as paintings and other objects of art. Such persons and articles are hereinafter collectively referred to as "an individual or individuals". In other  
10 aspects the invention may be used for identifying freightable articles such as shipping containers, motor vehicles or the like.

Positive identification of individuals is important for preventing unauthorized access to or passage from selected  
15 locations or facilities such as banks, accounts etc and restricted areas such as secure buildings and airport terminals and the like. Positive identification of individuals is particularly important for making Government level decisions concerning travellers access to countries,  
20 especially international travellers.

International travellers are often subjected to disruptive and excessive delays upon arrival at and/or departure from airport terminals as officials attempt to establish the bona fides of each traveller by manually  
25 interrogating each traveller and comparing the person being interrogated with the available identification such as passports, memory lists and computer files and the like, with the aim of identifying any traveller who is unauthorized to enter the country or whose details are on lists of restricted  
30 individuals. This entry check is also utilised to record details of movement of travelling individuals to and from each country visited.

The presently available methods of positive identification of an individual typically include passports,

knowledge of restricted information, such as a password, possession of a restricted article, such as a pass key, or physical appearance of the individual as portrayed in a reference photo.

5 Security based upon knowledge of restricted information or possession of a restricted article may be compromised without discovery since the information may be obtained from its rightful owner. Consequently such information does not provide a satisfactory method for positive identification of  
10 an individual in all cases, particularly where such identification has to be made quickly.

Methodologies relying on physical appearance, commonly referred to as biometric techniques such as fingerprint analysis, thermograms and DNA analysis are considered less  
15 vulnerable to mistaken identity and therefore are attractive to authorities but to date have been difficult to utilise successfully. Mostly such methodologies require a vast databank containing the particular biometric data which may be difficult and/or slow to locate and access.

20 One known method of utilising biometric techniques for identification of an individual for the purpose of restricting entry to an area to authorised persons only, includes providing each of the authorised individuals with a card containing biometric data specific to each individual.  
25 The card can be proffered at a reading station wherein the biometric data is read by a card reader or the like and compared with the individual proffering the card. A high correlation between the card data and the contemporaneously acquired data of the individual proffering the card results  
30 in access and a low correlation causes a refusal. This system however does not prevent unauthorized cards being produced which may be used for gaining unauthorized access to a facility.

Another known method includes comparing the biometric  
35 data on a card proffered by an individual to a previously

created database of biometric data of authorised individuals. Such a system can be foiled by individuals who have obtained a card from its rightful owner.

5 The present invention aims to alleviate at least one of the above disadvantages and to provide a method of and apparatus for providing identification which will be reliable and efficient in use.

With the foregoing in view this invention in one aspect resides broadly in a method of providing identification of an  
10 individual or a freightable article including:-

maintaining a database of identification data specific to the appearance and/or condition of the individuals or freightable articles;

providing a unique description for each individual or  
15 freightable article enabling access to the individuals or freightable articles identification data in the database; and

providing identification means adapted for portage with the individual or article and containing the unique description.

20 The identification data contained in the database may be data representative of an identifiable attribute and preferably includes biometric information such as thermograms, fingerprints, photographs, voice prints, DNA sequences or the like. Preferably the biometric information  
25 is information which may be obtained non-invasively and suitably information which can be obtained or captured by imaging an individual or article from a remote location. If the individual or article is not a living organism then other identifiable attributes such as surface images or acoustic  
30 response patterns may be utilised and the data representative of these attributes may be updated from time to time to take account of deterioration or changes in the article.

Preferably the database contains one protected parcel of identification data in respect of each individual or  
35 freightable article. The protected parcel of identification

data may be representative of more than one identifiable attribute such as thermogram and fingerprint. Each parcel may be associated with one or more add-on only files which may record historical or other information, for example,  
5 medical details such as blood group in the case of an individual or proprietorship, manufacturer etc in the case of a freightable article.

The database may be arranged to check existing data prior to approving entry of an identifiable attribute  
10 pertaining to an individual or freightable article so as to ensure that data specific to each individual or article is linked to one unique description only and/or it may be arranged to continuously scan the data checking for any matches or defined similarities which may indicate the  
15 existence of more than one description for an individual or article, that is, a forgery.

The unique description may be any information or data such as an address in a database and sufficient to isolate a file in respect of an individual or article in a database and  
20 may include an individual's name, date of birth, nationality or like characteristics. Preferably however the unique description is a unique file code assigned to the individual or article. The unique description may be arranged according to an international standard so as to enable positive  
25 identification of individuals or articles such as shipping containers on a global basis.

Preferably the unique description is machine readable only and of a type which may be protected by protection means. The protection means may be an encoding or encryption  
30 of the unique description or it may be or include a secure access code or style.

Preferably the identification means is an identification device as described hereinafter. However, the identification means may be any other suitable means such as for example, a  
35 number or code to be memorised by each individual and

proffered to obtain access to the identification data in the database.

In another aspect this invention resides broadly in an identification device including:-

- 5 carrier means, and  
a unique description carried by the carrier means.

The carrier means may be a card, token, plaque or the like and the unique description may be included thereon in any readable form. Preferably the unique description is  
10 machine readable from a remote location. For example, the unique description may be readable by a remote imaging system or laser or infra red radiation scanner or the like. Preferably, the identification device is responsive to a radio frequency signal wherein the unique description is  
15 transmitted for receipt by a remote receiving station.

The carrier means may carry information other than the unique description. For example, it may carry information as to which one of several databases contains the identification data for the particular individual or article under scrutiny  
20 thereby allowing a reading station to quickly locate the relevant database. Such additional information may also be transmitted with the unique description. Preferably however, the carrier means suitably carries no information of value to any individual other than the individual in respect of whom  
25 it was issued or the article in respect of which it was issued, only the means enabling access to be gained to the identification data in respect of that individual or article. Similarly, transfer of an identification device issued in respect of a particular article to another article serves no  
30 useful purpose.

The identification device may also include distinguishing means by which a receiving station can distinguish the identification device from other commonly carried programmable cards and like devices. In a preferred  
35 form of the invention the distinguishing means includes a

built-in time delay wherein other devices transmit their signals prior to transmission by the identification device thereby enabling a receiver to distinguish those signals from the signals transmitted by the programmable cards and the  
5 like from those transmitted by the identification device and accordingly discard them.

The identification device may include access means adapted to provide access to the receiving station such that the receiving station prepares itself to receive the unique  
10 description only after being opened by the access means. For example, the access means may include a specific signal stream recognised by the receiving station. The identification device may further include validation means for checking the validity of the information contained in  
15 previous signals. Preferably the validation means is arranged such that any tampering with the unique description or other information contained in the identification device or any tampering with components of the identification device will result in the identification device being flagged for  
20 investigation and at the same time allow receipt of any available information by the receiving station for storage at the receiving station in the add-on only file.

The identification device may also include encryption means wherein information transmitted from the identification  
25 device to a receiving station may be understood only by a receiving station utilising corresponding decoding means.

In a preferred form of the invention wherein the carrier means is a card identification data specific to each card issued is maintained in a database which may be suitably  
30 linked/associated with a database containing identification data specific to the individual to whom the card was issued. Such card specific data may for example include a pattern or ornamentation applied to a face of the card and readable by image reading equipment. Alternatively, the card specific  
35 data may be an individual signal contained in a transponder



and readable from a remote location.

In another aspect this invention resides broadly in a method of facilitating travel of an identifiable group of individuals presently identified or to be identified as

5 previously described, including:-

accessing the database or databases at or after an indication by an individual of the group of an intent to travel, accessing being enabled using the identification means;

10 compiling a packet of identification data in respect of the identified group of individuals;

retrieving the packet of data to a localised monitoring area at which said identified group are assembled or confirm their intention to travel;

15 comparing data of each individual in the retrieved packet of information with corresponding data generated at the localised monitoring area, and

permitting individuals with an operative correlation of data to continue on their travels.

20 This method provides the advantage that relatively large databases may be interrogated quickly either before travel or during confinement of the group for a prolonged travel period, to assemble a relatively small packet of data which may be readily localised to permit almost instantaneous  
25 positive identification of individuals in the group to be achieved and thereby facilitate their movement across restricted borders.

The database may be an international database.

Preferably however, each country maintains a national  
30 database containing information in respect of citizens of that country. Each national database may also include information in respect of foreign citizens who have previously entered each respective country, thereby providing easy access to data in respect of those persons who  
35 frequently travel to and from a particular country. This

may be contained in the add-on only file. The database or databases may be accessed upon instructions from the departure station or the destination station. The national databases may also include a restricted individuals database  
5 containing identification data in respect of individuals who are restricted from entering or leaving the country by court order or who are known criminals or the like. All members of the group may be quickly compared against such a database.

The packet of identification data may include parcels of  
10 identification data in respect of each member of the identified group of individuals and may relate to any group of individuals. A group may include all passengers ticketed for a particular vehicular movement such as a flight, train or bus journey, voyage or the like. In a preferred form,  
15 the identification data includes the identification data specific to each individual, such as the individual's thermogram, with travel information such as travelling companions and seat allocation being provided in the add-on only files. This may provide information and an audit trail  
20 which officials may use to readily identify useful information concerning an individual. This is particularly advantageous if one individual is identified as being unauthorized.

The packet of identification data compiled may include  
25 data taken from each individuals identification means and other information provided by the individual. However, in a preferred form of the invention, the identification data includes data specific to each individual which is retrieved from the database.

30 Preferably, the packet of data is compiled at the departure station, although it may be compiled at the national database or another suitable compiling station and be transmitted to a monitoring station for storage in a temporary storage means. Preferably, the packet of data is  
35 transmitted in an encrypted form so as to prevent

interference from unauthorized persons.

The localised monitoring area may be a monitoring station located at a departure airport or a destination airport or any other suitable station and the packet of data may be retrieved at one or more monitoring stations. In a preferred form of the invention the packet of data is compiled at the departure airport where it is temporarily stored and retrieved for comparison with departing passengers and also transmitted to the destination airport for comparison with the passengers as they arrive.

Preferably the identification means carried by each individual includes a unique description which is readable from a remote location as previously described. Such identification means provides an individual with the necessary means enabling passive confirmation of the individual's identity by being monitored remotely and compared with the identification data in the database. Alternatively, individuals may be required to present their respective identification means to a reader at a transit or monitoring station for monitoring purposes.

Whilst the individual could be compared visually by an operator with identification data in the form of an image retrieved automatically from the database upon reading the identification means at the monitoring station, it is preferred that the comparison be a non-subjective comparison performed mathematically or electronically such that human error or purposeful wrongdoing is avoided.

In a preferred form of the invention the identification data is a thermogram which may be compared with the corresponding passenger by any suitable means such as those disclosed in US Patent Specification 5,163,094 to Prokowski.

In another aspect this invention resides broadly in a method of facilitating movement of freightable articles such as shipping containers including:

sealing said article with an identifiable sealing means

which must be damaged in order to obtain access to said article;

entering information in relation to said sealing means and/or said article into said database;

5 checking said sealing means at a monitoring station to determine whether the article has been accessed;

retrieving the data to a localised monitoring area at which said article is stored;

10 comparing retrieved data in respect of the article with corresponding data generated at the localised monitoring area, and

permitting articles with an operative correlation of data to proceed to destination without inspection.

15 Preferably, the freightable article is identified according to the method of providing identification previously described. It is also preferred that the database is accessed at a time on or after allocation of the article to an identifiable shipping movement to enable positive identification of the article.

20 Preferably, the identifiable sealing means is an identification device as previously described and which has been suitably formed for attachment to an article in such manner that the device must be broken in order to gain access to the contents of the article. It is also preferred that  
25 the identifiable sealing means has a unique seal description included thereon in a readable form. For example, the unique seal description may be an array of numerical characters which is sufficient to isolate a file in respect of an individual seal and/or an individual article. The  
30 identifiable sealing means may also include unique seal specific data such as a pattern or ornamentation applied to a face of the sealing means and readable by image reading equipment. Alternatively, the seal specific data may be an individual signal contained in a transponder and readable  
35 from a remote location.

Suitably, the sealing means contains no information of value to any individual only the means enabling access to be gained to the information relating to the sealing means and the article to which it is applied in the database. In a  
5 preferred form of the invention such access will only be available to those authorised persons identified according to the previously described method of providing identification and will only be achieved after satisfactory correlation of that authorised persons biometric data collected at the place  
10 of access and the biometric data stored in the corresponding database.

Preferably, information in relation to the identifiable sealing means is added to the information contained in the database in respect of the article to which the sealing means  
15 is applied. It is also preferred that such information includes the unique seal description and that it is entered as an add-on file. Such add-on file may be superceded by later add-on files, although it is preferred that all current and non-current add-on files are maintained in the database  
20 for audit purposes. However, the sealing means may be utilised with a non-identified article and in such case information in respect of the sealing means may be added to a database in respect of the shipping agent or some other suitable database.

25 An add-on file may include information in respect of an article and a particular shipping movement. For example, in the case of the article being a shipping container, the information may include details on the personnel who packed the container, the time and date packed, the departure  
30 station, the arrival station etc, and the contents of the container. Such information may be added directly by authorised personnel.

Furthermore, the database may include information in respect of the identifiable sealing means such as its time  
35 and place of issue, individual or firm to whom it was issued,

shipping agent code or other similar information important for audit purposes. Preferably such information is also entered by authorised personnel only.

5       Checking for correlation with the information in the database may include visual checking of the sealing means and or article but preferably checking is carried out from a remote monitoring area.

10       The localised monitoring area may be a monitoring station located at packing, manufacturing or despatch area, departure port or destination port or any other suitable station and the packet of data may be retrieved at one or more monitoring stations.

15       In one form of the invention wherein a group of many shipping containers or other freightable articles is transported by a single transport vehicle such as a ship or train a packet of data comprising information in respect of each container in the group may be compiled at the departure port or other suitable compiling station by accessing the database in respect of each container. Such packet of data  
20       may be temporarily stored and retrieved for comparison with departing containers and also transmitted to the destination port for comparison with the containers as they arrive. Preferably, the packet of data is transmitted in an encrypted form so as to prevent interference from unauthorized persons.

25       Advantageously, relatively large databases may be interrogated before or during shipment to assemble a relatively small packet of data which may be readily localised to permit almost instantaneous positive identification of articles in the group to be achieved and  
30       thereby facilitate their movement across restricted borders.

      The database may be an international database but preferably each country maintains a national database containing information in respect of major articles such as shipping containers or vehicles registered in that country.

35       In order that this invention may be more readily

understood and put into practical effect reference will now be made to the accompanying drawings which illustrate a preferred embodiment of the invention and wherein:

Fig. 1a is a pictorial representation of an  
5 identification card according to the invention, and  
Fig. 1b is a pictorial representation of another  
identification card according to the invention, and  
Fig. 1c is a pictorial representation of a container  
seal according to the invention, and

10 Fig. 2 is a diagrammatic representation of a method of  
facilitating travel of authorised persons according to  
the invention, and

Figs. 3 and 4 are diagrammatic representations of the  
interconnection of relevant functional areas and  
15 databases for the implementation of a system according  
to the invention, and

Fig. 5 is a diagrammatic representation of a method of  
facilitating movement of motor vehicles according to the  
invention.

20 The radio frequency responsive identification card 10  
illustrated in Fig. 1a includes a wallet sized flexible  
plastic base layer 11 foldable about a centrally located fold  
line 12 which divides the card into an information portion 13  
and a validation portion 14. The information portion 13  
25 includes a circuitous antenna 15 embedded in the base layer  
11 for receiving signals. The antenna 15 is operatively  
connected to an entry transponder 16, a description  
transponder 17 and a validation transponder 18. The  
validation transponder 18 is located on the validation  
30 portion 14, the connection thereto passing across the fold  
line 12 by conductive tracks 19 and 20. A time delay  
component 22 is arranged to create a time delay between  
receipt of a radio frequency signal and transmission of a  
responding signal.

35 The transponders 16, 17 and 18 are arranged to report in

sequence in response to a radio frequency signal transmitted from an adjacent transmitting and receiving station.

The entry transponder 16 includes an entry key component 22 which is configured to transmit a reader station access code to the receiving station, thereby alerting the receiving station of a valid signal part. The receiving station is thereby prepared for receiving further signal parts from transponders 16, 17 and 18. The component 22 effectively prevents the receiving station processing any signal which does not begin with the access code. The transponder 16 also contains information in respect of which database contains the individuals identification file.

The description transponder 17 is an integrated circuit which transmits a signal indicative of the unique description assigned to the individual to whom the card was issued and an identification of the issuing station which issued the card. The description transponder 17 transmits its signal directly after transponder 16.

The transponder 18 is an integrated circuit containing a validation and encryption code. The encryption code is unique to the card and cooperates with the file location code such that the signal recorded by the receiving station is a parcel of information with a unique identifier which must be decoded by corresponding decoding means associated with the receiving station.

The radio frequency responsive identification card 10 illustrated in Fig. 1b includes components as described in respect of Fig. 1a. However, in this embodiment the validation portion circumscribes the information portion wherein the conductive tracks 19 and 20 effectively surround the antenna 15.

In use, the transmitting and receiving station typically located at both the departure station and the arrival station, transmits an empowering signal at a particular frequency for a predetermined period of time. All cards



operating at that frequency and within the designated range or zone, such as by being carried by a single individual, may be activated by the empowering signal. The identification card is activated by the signal but, unlike the other cards, does not respond immediately because of the in-built response time delay. The length of the time delay is set to allow sufficient time for all cards likely to be activated at the same frequency to transmit their messages so as to allow a signal subsequently transmitted by the identification card to be identified and received clearly and uninterruptedly by the receiving station.

At the end of the designated time delay the entry transponder 16 transmits its signal to the receiving station which then prepares to receive a message signal from the description transponder 17 and a validation signal from the validation transponder 18.

If the validation signal is received as expected the encryption code encompassed in the signal transmitted by validation responder 18, cooperates with the messages from transponders 16 and 17 to create an encrypted message which is received as a parcel of ready to send information by the receiving station. If validation transponder 18 does not respond or indicates a discrepancy in the signal from the description transponder 17, then the message transmitted by transponder 17 is unable to be encrypted by the unique encryption code carried by the responder 18. However, the message is subsequently encrypted by an encryption code specific to the particular receiving station reading the card. Accordingly, the message is prepared as a flagged parcel of information providing an indication that the individual requires further investigation.

Fig. 1(c) illustrates a seal for a shipping container incorporating the card of Fig. 1(b) in pursuance of the method illustrated in Fig. 5. A failure of the validation responder or a discrepancy in the signal from the description

transponder 17 will indicate that the seal assembly has been removed or broken and that the container has possibly been accessed. It will be appreciated that the seal is a "use only once seal". For this purpose the seal includes a  
5 looping strip 27 for looping to the container door and which is received in the knife edge slot 26. A similar looping strip 28 is provided for looping to the container body. Any attempts to open the door will damage the conductive tracks 19 and 20 or the validation transponder 18a. In an  
10 alternative embodiment the looping strip 28 is replaced with a saddle including a slot similar to slot 26 and the connector strip 25 may pass through the slot 26 to lock about the container door and the container body.

The facilitation of travel by authorised persons is  
15 illustrated schematically in Figs. 2, 3 and 4 and is described hereinafter. Persons wishing to travel internationally apply for and are issued with an identification card of the type described above. The card is issued by a card issuing station whereat the appropriate  
20 unique description is programmed into the card. Either at the same time or subsequently, the biometric data of choice unique to each person and suitably a thermogram is prepared and stored (preferably in digital form) in the database of the file holding station at a file location designated by the  
25 unique description. The thermogram is suitably of the type described in US patent No.5163094 to Prokowski.

The individual may subsequently indicate a desire to travel to Australia. Such a desire for example, may be indicated by the purchase of an airline ticket or making an  
30 application for a visa. The individuals identification card may be read at this time and the airline ticket would be issued in the name of the person to whom the card was issued.

At this time the individual's add-on file in the national database would be updated to show that he is  
35 authorised to travel to Australia and remain there for a

specified period of time. Upon updating of his add-on file the individual may be issued with a suitable receipt or ticket for his own benefit and record although such a receipt would not be used for any official purpose.

- 5        In a preferred embodiment the individuals thermogram or other biometric data is retrieved from the database or prepared at this time and stored in a departure station database arranged to collate thermograms in respect of individuals ticketed for each particular flight.
- 10      Accordingly, information specific to each person as well as information in regard to authorised length of visit and the like or other information enabling quick and easy access to that information in respect of each person on a particular flight is prepared as a packet of identification data prior
- 15      to the time of departure.

As passengers move towards the departure lounge or through the departure gates, for example, they are scanned by a remote scanner to create a contemporary thermogram which may be instantly compared with the thermogram previously

20      loaded into the departure station database to positively identify each passenger.

Those passengers positively identified as authorised passengers by a sufficient correlation between the contemporary thermogram and the departure station database

25      thermogram are afforded an uninterrupted passage to the departing aircraft. Those passengers in respect of whom the correlation is below the requisite level are directed to a designated area for further identification. This process is carried out for all persons boarding the aircraft.

30      The departure station may also maintain a database of prohibited persons which preferably is accessed for comparison with all passengers. Any person who is identified as a prohibited passenger may be prevented from boarding the aircraft.

35      At the same time or timely during the flight, the packet

of information data containing all of the passenger data is transmitted to the destination station where it is stored in the destination station database. Those persons not positively identified in the short period before boarding and  
5 allowed to board are investigated further during the relatively long period in which the aircraft is in transit. Accordingly, those passengers for whom authorization is eventually established are provided with easy entry to the destination airport and those who have not been positively  
10 identified are detained for further identification.

At the destination airport all passengers proceed past a scanning station where each passenger's identification card is read remotely, thereby enabling the stored thermogram for that card to be retrieved. Each passenger is coincidentally  
15 thermogrammed by a remote thermographic scanner focussed on the person carrying the sensed card. The thermograms are compared and where a sufficient correlation is achieved such persons progress to their destination without further interruption by officials through selection gates which may  
20 be actuated by the monitoring equipment automatically. Suitably the selection gates unobtrusively capture unauthorized individuals for safe further investigation. The add-on database may be updated at this time automatically to record the arrival of each passenger in the destination  
25 country.

Alternatively the departure airport may package the information contained on the identification cards of individuals on a flight and send this to the arrival destination which compiles the packet of identification data  
30 for their use to facilitate free passage of bona fide disembarking travellers.

Preferably each station which can access the database has an individual station access code and each operator manning such a station has an individual operators code.  
35 Suitably this information is added to the add-on only file

each time an access is made or attempted. Suitably, authorization to access the database is provided in a similar manner wherein biometric correlation is required.

Accordingly, an audit trail of actions is maintained and a  
5 log of authorised movements of each individual is recorded in such a manner that a history report including details of the operator updating the file can be established.

Foreign travellers in a host country need only carry their identification cards. If queried as to whether they  
10 are authorised to be in the particular country, they only need to accompany a government official to a reading station where a contemporary thermogram can be taken and where their identification cards can be used to access the national database to retrieve each individuals thermogram and  
15 authorised travelling particulars.

In addition to the foregoing this invention could be used to monitor individuals entering and exiting a secured area such as border crossings or prisons. Furthermore, the method of providing identification may be utilised to  
20 establish the identity of persons undergoing medical treatment. For example, the database may include information in regard to medical condition, bloodgroup or the like and such information may be utilised by hospital staff upon receipt of confirmation of an injured persons identity rather  
25 than performing on the spot blood tests to determine that persons blood group. Advantageously, such method will save time. Alternatively, a medical practitioner could prescribe drugs or treatment to a distant patient upon establishment of the patients identity by the foregoing method secure in the  
30 knowledge that the persons identity has been correctly established.

The facilitation of movement of shipping containers or motor vehicles is illustrated schematically in Fig. 5. The term biometric data as used in relation to the freightable  
35 articles means an identifiable attribute specific to the

article such as a surface image.

Entities wishing to export on a regular basis will be required to make application to become authorised exporters. On approval of such application all personnel employed by the authorised entity will be issued with a personal identification device as previously described. Information in respect of the preparation, packaging and contents of individual parcels to be shipped in a shipping container will be entered into the add on file in respect of that particular container which will be identified according to the method previously described. Upon closure, the container will be sealed with a seal assembly as previously described which has been issued to the authorised entity by an official issuing authority. Details of the seal will be entered into the database and married with the identification data in respect of the container as an add-on file. If the container is a non-identified container, then the seal details will be married with details of the shipping entity. The same process will be carried out by all authorised exporting entities.

Containers arriving at a shipping station will be remotely scanned to check for any unauthorized access to each container between the despatching station of the exporting entity and the shipping station and also for any damage to the seal. Information in respect of all containers to be loaded on a particular ship will be compiled to form a package of data which will be transmitted to the destination port.

At the destination port the containers will be unloaded and scanned automatically to determine if the seals have been damaged. The seals and the identification data will be compared with the transmitted packet of data. Visual checking to determine whether the containers have been entered by removal of a remote wall panel of the container may also be carried out. A plurality of sealing assemblies

may be applied to suitable parts of the container if necessary.

Those containers positively identified (i.e. with a suitable correlation between the transmitted data and the data obtained at the destination) and having the seal intact, (that is the seal sends a valid signal), will be directed from the destination port without further checking. However, those containers which are either not positively identified or whose seal assemblies do not provide a valid signal will be directed to a checking station for further investigation.

By use of this method freight forwarded by bona fide exporting entities will be afforded an uninterrupted passage unless an unauthorized party has gained access to the container during shipment or a seal has been accidentally damaged. The method therefore is expected to improve the efficiency of freight movement.

Of course separate parts of the system disclosed herein may be used advantageously where cost or other considerations do not warrant full utilization of the apparatus or method of the invention as described above. However it will of course be realised that the above has been given only by way of illustrative example of the invention and that all such modifications and variations thereto as would be apparent to persons skilled in the art are deemed to fall within the broad scope and ambit of the invention as is herein set forth.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A method of providing identification of an individual including:-
  - maintaining a database of identification data specific
  - 5 to the appearance and\or condition of individuals;
  - providing a unique description for each individual enabling access to the individuals identification data in the database, and
  - providing identification means adapted for portage with
  - 10 the individual and containing the unique description.
2. A method of providing identification of a freightable article including:-
  - maintaining a database of identification data specific
  - to the appearance and\or condition of freightable articles;
  - 15 providing a unique description for each freightable article enabling access to the freightable articles identification data in the database, and
  - providing identification means adapted for portage with the article and containing the unique description.
- 20 3. A method as claimed in claim 1, wherein the identification data includes biometric information.
4. A method as claimed in claim 3, wherein the biometric information is data which may be obtained non-invasively.
5. A method as claimed in any one of claims 1 to 4, wherein
- 25 the database includes protected identification data specific to the appearance and\or condition of the individual or freightable article.
6. A method as claimed in any one claims 1 to 5, wherein the database prevents maintenance of the same identification



data for an individual or freightable article.

7. A method as claimed in any one of claims 1 to 6, wherein the unique description is a unique file code assigned to the individual or freightable article.

5 8. An identification device including:-  
carrier means, and  
a unique description carried by the carrier means.

9. An identification device as claimed in claim 8 wherein  
10 the unique description is machine readable from a remote  
location.

10. An identification device as claimed in claim 9 and  
responsive to a radio frequency signal wherein the unique  
description may be transmitted for receipt by a remote  
15 receiving station.

11. An identification device as claimed in any one of claims  
8 to 10, wherein the carrier member also carries information  
relating to the location of identification data in respect of  
the individual to whom the device was issued.

20 12. An identification device as claimed in claim 10 and  
including distinguishing means by which a receiving station  
can distinguish the identification device from other radio  
frequency responsive devices.

13. An identification device as claimed in claim 12, wherein  
25 the distinguishing means includes a built-in time delay for  
delaying the transmission of the signal.

14. An identification device as claimed in claim 13  
including access means adapted to provide signal access to

the receiving station.

15. An identification device as claimed in claim 14, wherein the access means includes a specific signal stream.

16. An identification device as claimed in any one of claims  
5 10 to 15 and including validation means for checking the validity of the information contained in previous signals.

17. An identification device as claimed in claim 16, wherein the validation means is arranged such that any tampering with the unique description or other information contained in the  
10 identification device or any tampering with components of the identification device will result in the identification device being flagged for investigation.

18. An identification device as claimed in any one of claims  
10 to 17 including encryption means wherein information  
15 transmitted from the identification device to a receiving station may be understood only by a receiving station utilising corresponding decoding means.

19. A method as claimed in any one of claims 1 to 7, wherein the identification means is an identification device as  
20 claimed in any one of claims 8 to 18.

20. A method of facilitating travel of an identifiable group of individuals identified according to the method as claimed in claim 1 or any one of claims 3 to 7, including:-

accessing the database at or after an indication by an  
25 individual of the group of an intent to travel, accessing being enabled using the identification means;

compiling a packet of identification data or unique descriptions in respect of the identified group of individuals;

25

retrieving the packet of data to a localised monitoring area at which said identified group are assembled or confirm their intention to travel;

retrieving the identification data at the localised  
5 monitoring area utilizing the retrieved packet of information;

generating corresponding identification data of the group to be identified at the localised monitoring area;

comparing the generated identification data for each  
10 individual of the group to be identified with the retrieved identification data, and

permitting individuals with an operative correlation of identification data to continue on their travels.

21. A method as claimed in claim 20, wherein the group  
15 includes the passengers of a vehicle.

22. A method as claimed in claim 20, wherein the packet of data is compiled at a departure airport for comparison with departing passengers and transmitted to the destination airport for comparison with the arrival passengers.

20 23. A method as claimed in any one of claims 20 to 22, wherein the packet of data is retrieved in an encrypted form.

24. A method as claimed in claim 22 or 23, wherein the comparison is performed mathematically or electronically.

25 25. A method of facilitating movement of freightable articles such as shipping containers including:

sealing each said article with an identifiable sealing means which must be damaged in order to obtain access to said article;

entering data in relation to the unique identity of each  
30 said sealing means into a database;

checking said sealing means at the localised monitoring station to determine whether the article has been accessed;

retrieving the data to a localised monitoring station to which the article is intended to be transported;

5        comparing the retrieved data in respect of the articles with corresponding data generated at the localised monitoring station, and

         permitting articles with an operative correlation of data and which have not been accessed to proceed to  
10 destination without internal inspection.

26. A method as claimed in claim 25 wherein the freightable article is identified according to the method as claimed in any one of claims 2 to 7.

27. A method as claimed in claim 25, wherein the sealing  
15 means is machine readable.

28. A method as claimed in any one of claims 25 to claim 27, wherein the identifiable sealing means includes an identification device as claimed in any one of claims 8 to 19.

20 29. A method as claimed in any one of claims 25 to 28, wherein the identifiable sealing means also includes unique seal specific data.

30. A method as claimed in claim 29, wherein the unique seal specific data is contained in a transponder and readable from  
25 a remote location.

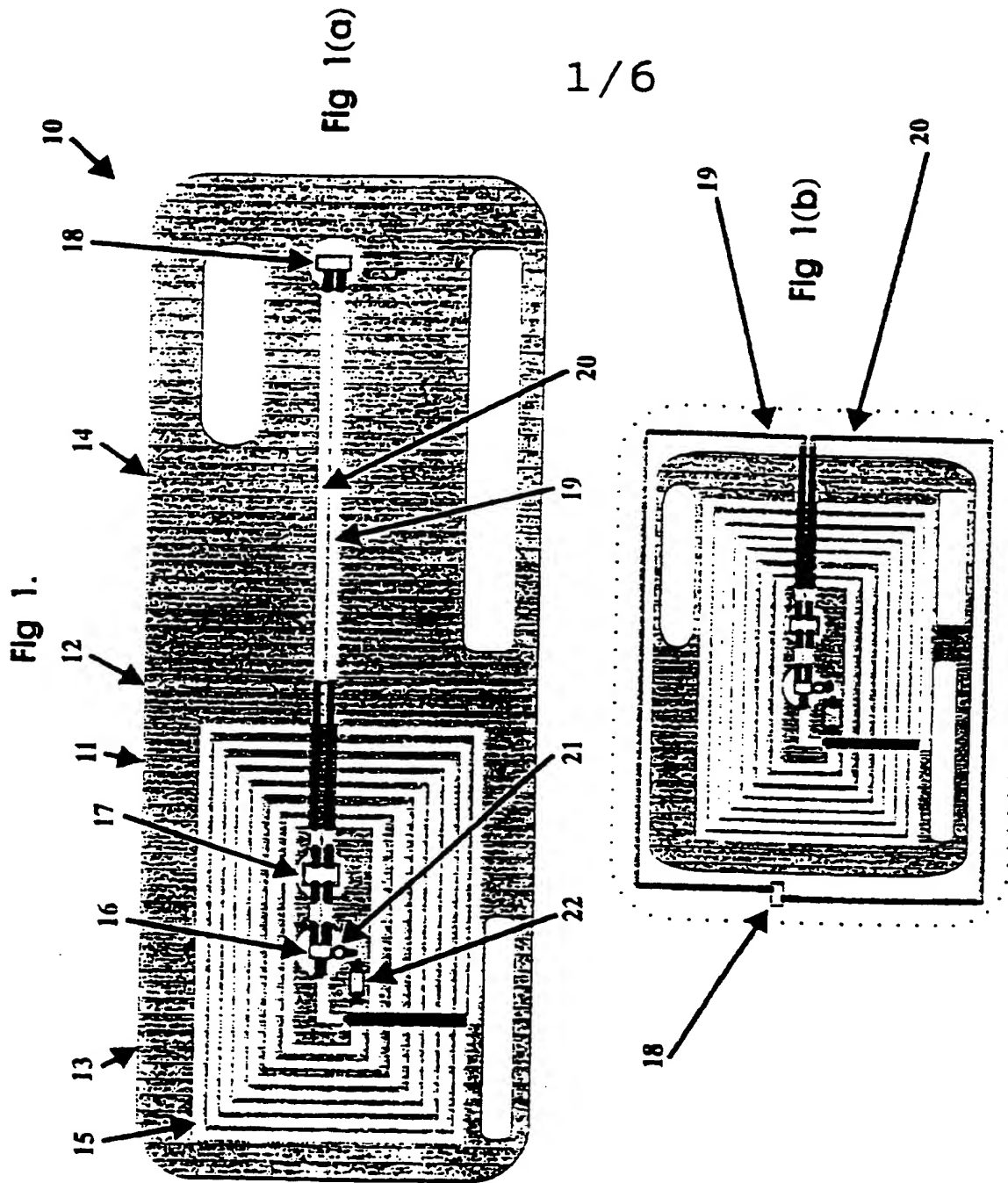
31. A method as claimed in any one of claims 25 to 30, wherein the database includes information in respect of the issuance of the identifiable sealing means or the article to which it is applied.

32. A method as claimed in claim 25, wherein the information in the database may be monitored from a remote monitoring location.

33. A method as claimed in any one of claims 25 to 33,  
5 including compiling a packet of data comprising information in respect of each container in a group of containers intended for transport by a single transport vehicle.

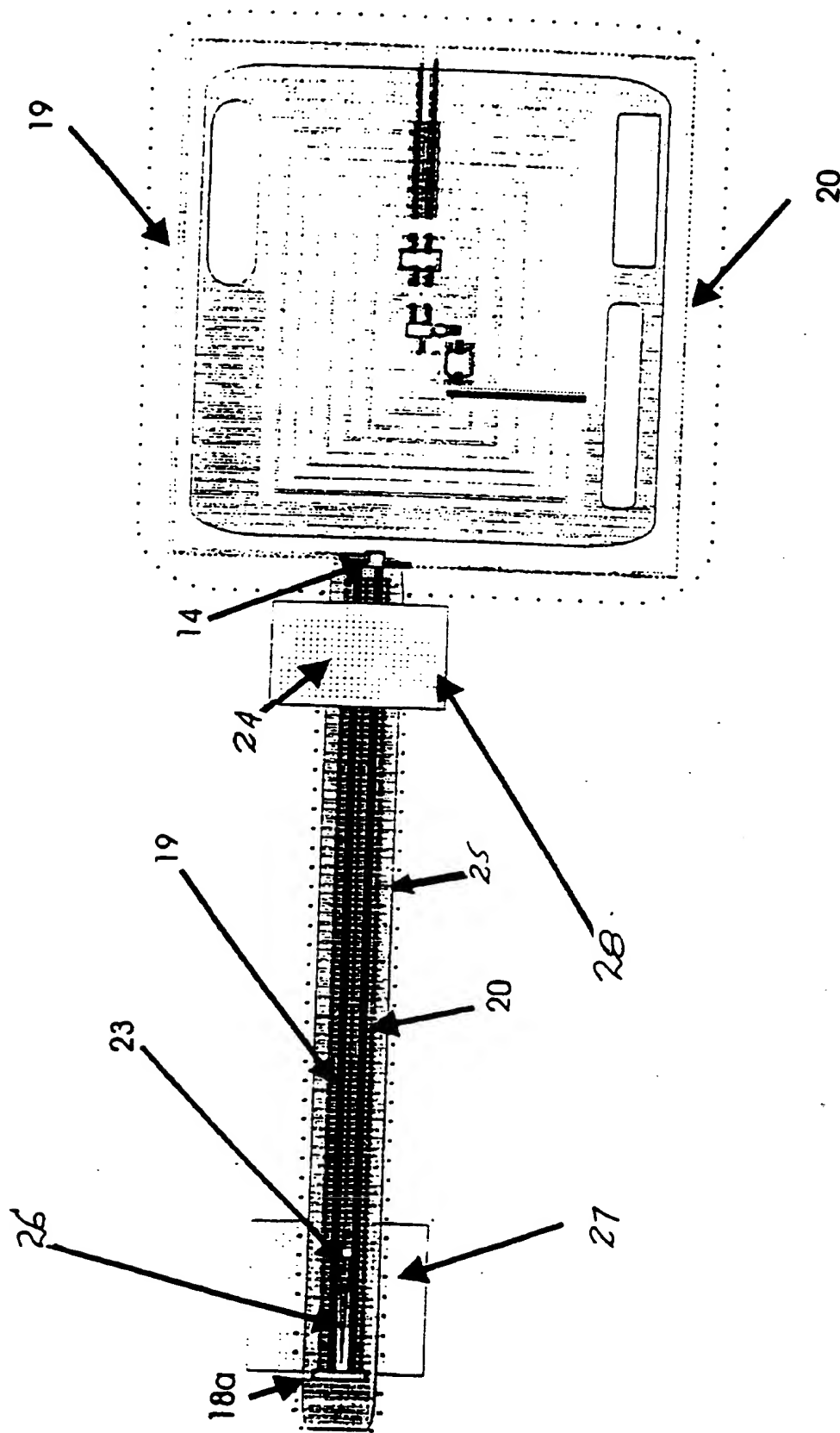
35. A method as claimed in claim 34, including temporarily storing said packet of data, retrieving said data for  
10 comparison with departing containers and transmitting said data to the destination port for comparison with the containers upon arrival.

36. A method as claimed in claim 35 wherein the data is transmitted in an encrypted form.



2 / 6

Fig 1(c)



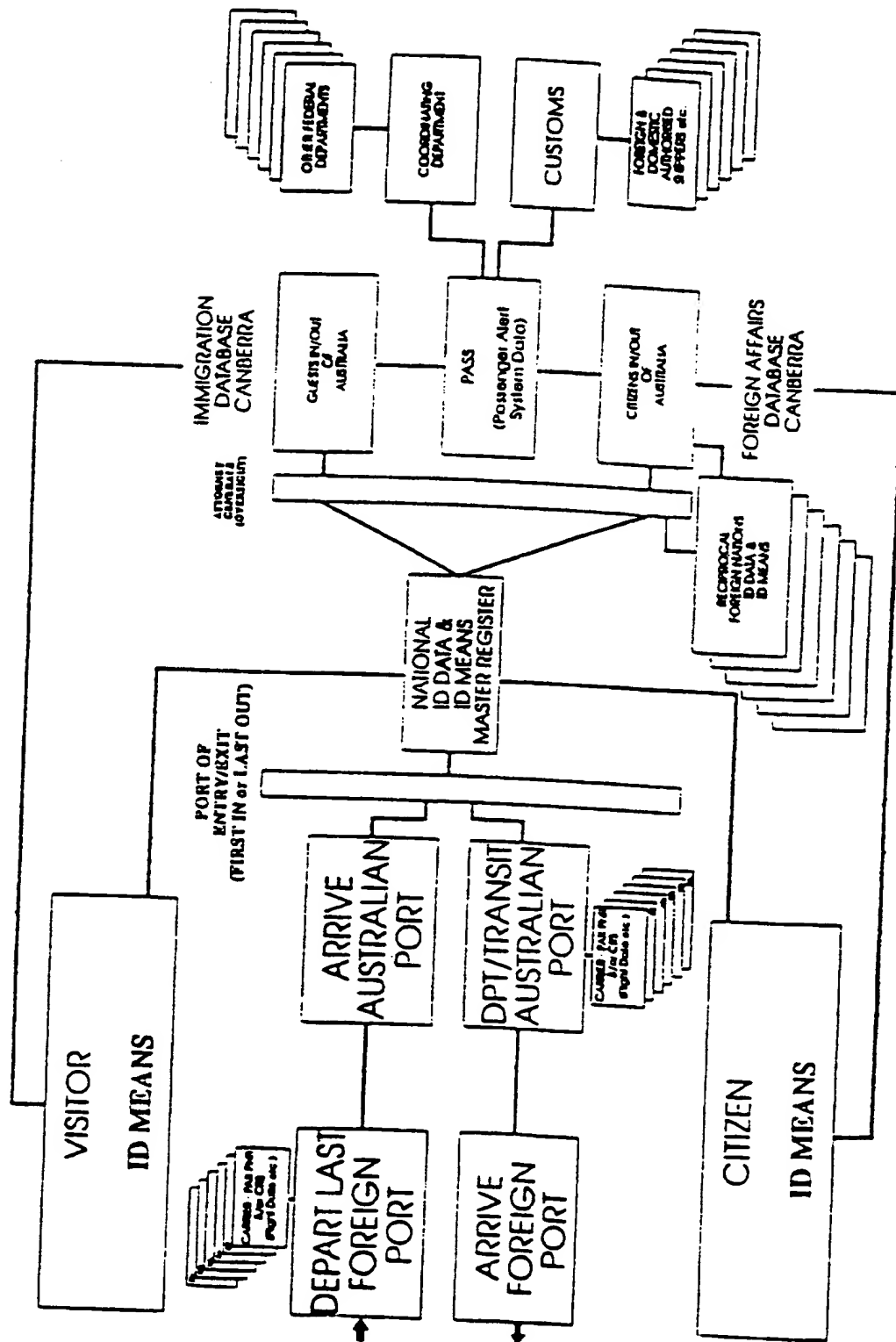
SUBSTITUTE SHEET (RULE 26)





4/6

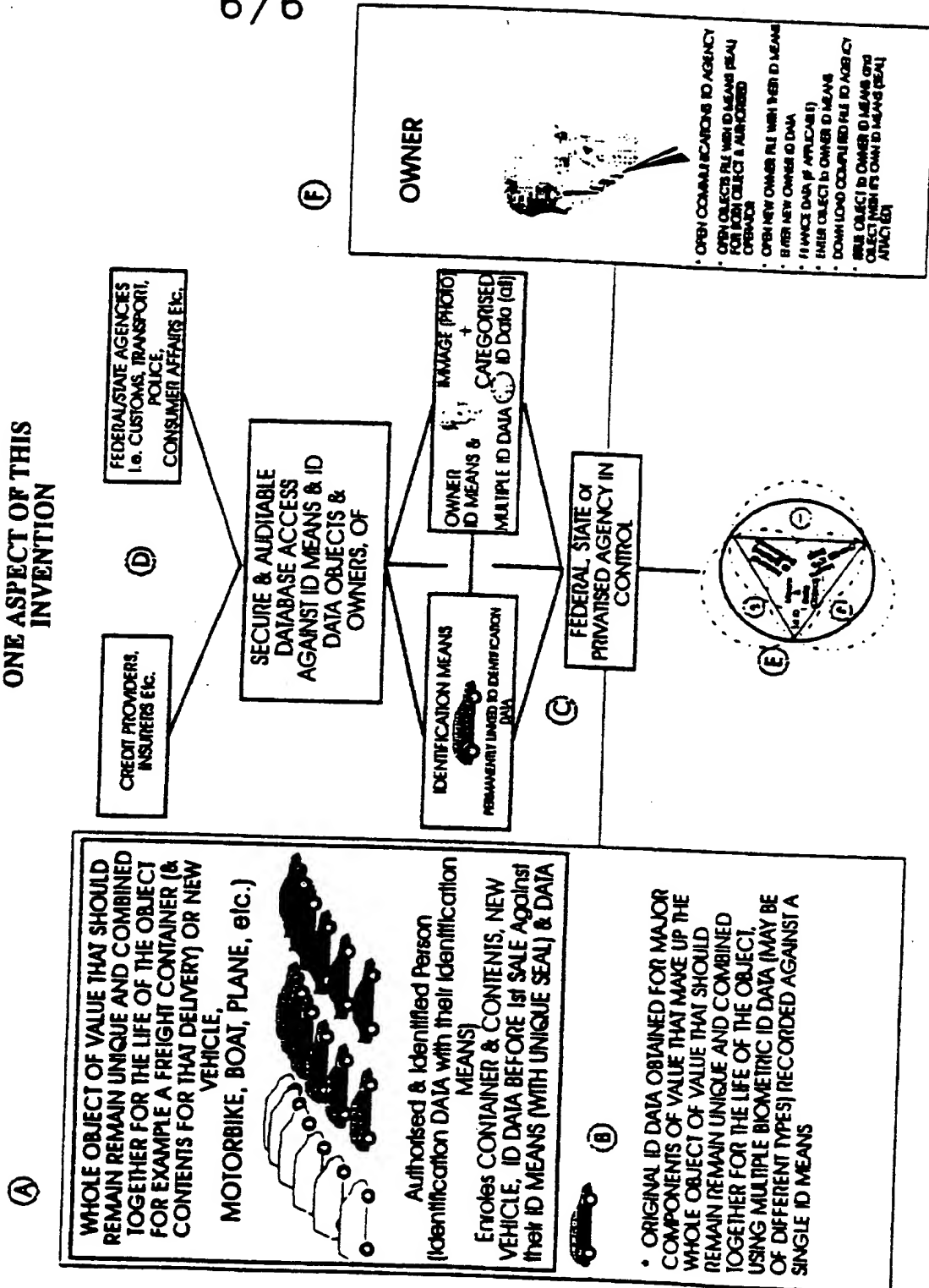
Fig 3.





6/6

Fig 5.  
ONE ASPECT OF THIS  
INVENTION



## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/AU 95/00545

**A. CLASSIFICATION OF SUBJECT MATTER**Int Cl<sup>6</sup>: G06K 19/067 B42D 15/10 G09F 3/03

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC G06K 19/067 B42D 15/10 G09F 3/03 B65D A61B 5/117

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
AU: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DERWENT: TRAVEL: SECUR: ACCESS: TRANSPORT: IDENTIF:

JAPIO: as above

COMPENDEX: as above

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category*  | Citation of document, with indication, where appropriate, of the relevant passages        | Relevant to claim No. |
|------------|---|-----------------------|
| X,P<br>Y,P | WO 95/26013 (MINNESOTA MINING & MANUFACTURING)<br>28 September 1995<br>See whole document | 8-10<br>1-7, 11-36    |
| X,P<br>Y,P | WO 95/16245 (KALIX ELEKTRONIK AB)<br>15 June 1995<br>See whole document                   | 8-10<br>1-7, 11-36    |
| X,P<br>Y,P | US 5412192 A (HOSS) 2 May 1995<br>See whole document                                      | 8-10<br>1-7, 11-36    |

☒ Further documents are listed in the continuation of Box C☒ See patent family annex

## \* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search  
14 December 1995Date of mailing of the international search report  
28 December 1995Name and mailing address of the ISA/AU  
AUSTRALIAN INDUSTRIAL PROPERTY ORGANISATION  
PO BOX 200  
WODEN ACT 2606  
AUSTRALIA Facsimile No.: (06) 285 3929

Authorized officer

John Thomson

Telephone No.: (06) 283 2214

International Application No.  
PCT/AU 95/00545

**PCT/AU 95/00545**

**C (Continuation)**

| Category*  | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
|------------|--|-----------------------|
| X,P<br>Y,P | WO 95/02225 A (BEHNKE) 19 January 1995<br>See whole document                         | 8-10<br>1-7, 11-36    |
| Y,P        | WO 94/29179 A (ESOR S.A.R.L.) 22 December 1994<br>See whole document                 | 1-36                  |
| X<br>Y     | IEEE SPECTRUM "Vital signs of identity" (BENJAMIN MILLER)<br>February 1994, pp 22-30 | 8-10<br>1-7, 11-36    |

**INTERNATIONAL SEARCH REPORT**

International Application No.

**PCT/AU 95/00545**

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

| Patent Document Cited in Search Report |         |    | Patent Family Member |    |         |
|--|---------|----|----------------------|----|---------|
| WO                                     | 9526013 | AU | 21860/95             |    |         |
| WO                                     | 9516245 | SE | 9304087              |    |         |
| US                                     | 5412192 |    |                      |    |         |
| WO                                     | 9502225 | AU | 62072/94             | DE | 4322445 |
| WO                                     | 9429179 | AU | 70018/94             | FR | 2706422 |
| END OF ANNEX                           |         |    |                      |    |         |

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**